

CLAIMS

WHAT IS CLAIMED IS:

- 1 1. An optical disk changer for reading a first and a second side of an optical disk
2 comprising:
3 (a) a base;
4 (b) a carrousel rotationally coupled to said base for receiving, holding, and
5 delivering the optical disk; and
6 (c) an optical disk reader attached to said base within said carrousel, the reader
7 having a first loading mechanism on a first side of said reader and a second
8 loading mechanism on a second side of said reader, the first loading
9 mechanism for loading the optical disk when the first side of the optical disk
10 is read and the second loading mechanism for loading the optical disk when
11 the second side of the optical disk is read.
- 1 2. The optical disk changer of claim 1 wherein the optical disk is a dual-sided
2 DVD.
- 1 3. The optical disk changer of claim 1 wherein said carrousel holds disks
2 radially about a center rotation point of said carrousel with the rotational axis of each
3 optical disk substantially perpendicular to the axis of rotation of the carrousel.
- 1 4. The optical disk changer of claim 3 wherein said carrousel has slots for
2 holding a plurality of disks.
- 1 5. The optical disk changer of claim 1 wherein the first loading mechanism
2 includes two substantially parallel cylinders that cooperatively rotate to move the
3 optical disk into and out of said optical disk reader and the second loading mechanism
4 includes two substantially parallel cylinders that cooperatively rotate to move the
5 optical disk into and out of said optical disk reader.

1 6. The optical disk changer of claim 1 further comprising a first ejector arm for
2 pushing the optical disk from said carrousel along a first direction.

1 7. The optical disk changer of claim 6 further comprising a second ejector arm
2 for pushing the optical disk from said carrousel along a direction opposite to the first
3 direction.

1 8. An optical disk changer for reading a first and a second side of at least one
2 optical disk comprising:

3 (a) a base;

4 (b) a carrousel rotationally coupled to said base for receiving, holding, and
5 delivering at least one optical disk;

6 (c) an optical disk reader attached to said base outside of said carrousel; and

7 (d) a transfer mechanism coupled to said base within said carrousel, said transfer
8 mechanism having a first loading mechanism on a first side of said transfer
9 mechanism for loading the optical disk into said transfer mechanism and a
10 second loading mechanism on a second side of said transfer mechanism for
11 loading the optical disk into said carrousel.

1 9. The optical disk changer of claim 8 wherein the optical disk is a dual-sided
2 DVD.

1 10. The optical disk changer of claim 8 wherein said carrousel holds disks radially
2 about a center rotation point of said carrousel with the rotational axis of each optical
3 disk perpendicular to the axis of rotation of the carrousel.

1 11. The optical disk changer of claim 10 wherein said carrousel has outer slots
2 through which optical disks are received and delivered and inner slots through which
3 optical disks are received and delivered.

1 12. The optical disk changer of claim 8 wherein the first loading mechanism is
2 formed by two substantially parallel cylinders that cooperatively rotate to move the
3 optical disk into said transfer mechanism and the second loading mechanism is
4 formed by two substantially parallel cylinders that cooperatively rotate to move the
5 optical disk out of said transfer mechanism.

1 13. The optical disk changer of claim 8 further comprising an ejector arm for
2 urging the optical disk from said carousel into the first side of said transfer
3 mechanism.

1 14. The optical disk changer of claim 8 further comprising an ejector arm for
2 urging the optical disk from said carousel into said optical disk reader.

1 15. An optical disk changer for reading a first and a second side of an optical disk
2 comprising:
3 (a) a base;
4 (b) a carousel rotationally coupled to said base for receiving, holding, and
5 delivering the optical disk;
6 (c) an optical disk turner rotationally coupled to said base within said carousel
7 for turning the optical disk, said turner having a first loading mechanism on a
8 first side of said turner and a second loading mechanism on a second side of
9 said turner, the first loading mechanism for loading the optical disk into said
10 turner and the second loading mechanism for loading the optical disk into said
11 carousel after said turner has been rotated relative to said carousel; and
12 (d) an optical disk reader attached to said base outside of said carousel for
13 reading the first side of the optical disk, and for reading the second side of the
14 optical disk that has been turned by said optical disk turner.

1 16. The optical disk changer of claim 15 wherein the optical disk changed is a
2 dual-sided DVD.

1 17. The optical disk changer of claim 15 wherein said carrousel stores disks
2 radially about a center rotation point of said carrousel with the rotational axis of each
3 optical disk perpendicular to the axis of rotation of the carrousel.

1 18. The optical disk changer of claim 17 wherein said carrousel has outer slots
2 through which optical disks are received and delivered and inner slots through which
3 optical disks are received and delivered.

1 19. The optical disk changer of claim 15 wherein the first loading mechanism is
2 formed by two substantially parallel cylinders that cooperatively rotate to move the
3 optical disk into and out of said optical disk turner and the second loading mechanism
4 is formed by two substantially parallel cylinders that cooperatively rotate to move the
5 optical disk into and out of said optical disk turner.

1 20. The optical disk changer of claim 15 further comprising an ejector arm for
2 urging the optical disk from said carrousel into the first side of said optical disk
3 turner.

1 21. The optical disk changer of claim 15 further comprising an ejector arm for
2 urging the optical disk from said carrousel into said optical disk reader.

1 22. A method of translating an optical disk comprising:
2 (a) translating the optical disk from a carrousel to a disk reader along a first
3 direction; and
4 (b) translating the optical disk from the disk reader to the carrousel along the first
5 direction.

1 23. A method of reading data from an optical disk comprising:
2 (a) holding the optical disk in a carrousel;

- 3 (b) delivering the optical disk from the carrousel to a location within the carrousel
- 4 by translating the optical disk in a first direction;
- 5 (c) reading data from a first side of the optical disk;
- 6 (d) delivering the optical disk from the location to the carrousel by translating the
- 7 optical disk in the first direction;
- 8 (e) rotating the carrousel;
- 9 (f) loading the optical disk from the carrousel to the location within the carrousel
- 10 by translating the optical disk in the first direction; and
- 11 (g) reading data from a second side of the optical disk.

1 24. A method of translating an optical disk having a first side and a second side
2 comprising:

- 3 (a) holding the optical disk in a carrousel;
- 4 (b) if data from the first side of the optical disk is to be read, then translating the
- 5 optical disk to a location within the carrousel in a first direction; and
- 6 (c) if data from the second side of the optical disk is to be read, then translating
- 7 the optical disk to the location in a direction opposite to the first direction.

1 25. A method of delivering an optical disk into a carrousel comprising:

- 2 (a) holding the optical disk in a carrousel;
- 3 (b) delivering the optical disk from the carrousel to a location within the carrousel
- 4 by translating the optical disk in a first direction;
- 5 (c) rotating the disk; and
- 6 (d) delivering the optical disk from the location to the carrousel by translating the
- 7 optical disk in a direction opposite to the first direction.

1 26. A method of reading data from an optical disk comprising:

- 2 (a) holding the optical disk in a carrousel;
- 3 (b) if data from the first side of the optical disk is to be read, then delivering the
- 4 optical disk to an optical reader and reading the data; and

5 (c) if data from the second side of the optical disk is to be read, then delivering
6 the optical disk to a transfer mechanism along a first direction, delivering the
7 optical disk to the carrousel along the first direction, delivering the optical
8 disk to the optical reader, and reading the data.

1 27. A method of reading data from an optical disk comprising:

2 (a) holding the optical disk in a carrousel;

3 (b) if data from the first side of the optical disk is to be read, then delivering the
4 optical disk to an optical reader and reading the data; and

5 (c) if data from the second side of the optical disk is to be read, then delivering
6 the optical disk to a turning mechanism, rotating the optical disk, delivering
7 the optical disk to the carrousel, delivering the optical disk to the optical
8 reader, and reading the data.